

REMARKS

Claims 14-59 are all the claims pending in the application. Claims 1-13 have been canceled, claims 14 and 15 have been amended to recite the formation of a conversion layer by carboxylation, and claims 16-17, 19, and 21-23 have been amended to depend from claim 14. Additionally, new claims 24-59 corresponding to claims 2-13 and 16-23 have been added.

Entry of the above amendments is respectfully requested.

Preliminarily, Applicants would like to thank the Examiner for the telephone interview conducted with Applicants' representative on May 12, 2009. Applicants believe that the interview was helpful in advancing the prosecution of the present application.

Turning to the rejections, claims 1-2, 5, 8, 14, 16, and 18-22 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Derule et al. (US 5,683,751); claims 3, 6, 9 and 23-25 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Derule in view of Speckmann et al. (US 5,230,730); claims 4 and 7 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Derule, in view of Speckmann and Burge et al. (US 5,916,483); claims 10-11 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Derule in view of Flasch et al. (US 3,776,881); claims 12-13 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Derule in view of Hughes et al. (US 6,206,982); claim 15 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Derule in view of Emmonds; and claim 17 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Derule in view of Melotik (US 3,969,152).

Applicants respectfully traverse the rejection for the reasons of record and for the following additional reasons.

Independent claim 14 is directed to a method of treatment by carboxylation, before shaping, of a metal surface in oxidizing conditions in relation to the metal, comprising bringing

the said metal surface selected from the group consisting of zinc, iron, aluminum, copper, lead, alloys thereof, galvanized steel, aluminium-coated steel, and copper-coated steel into contact with an organic or hydro-organic aqueous bath comprising at least one organic acid in free form or in the form of salt to form a conversion layer by carboxylation, wherein:

- the said organic acid is a saturated or unsaturated aliphatic monocarboxylic or dicarboxylic acid,
- the said organic acid is in solution and/or in emulsion in the bath at a concentration greater than 0.1 mole/litre and 1.5 mole/litre or less,
- the pH of the bath is acidic, wherein said oxidizing conditions are obtained by addition to the bath of a chemical agent adapted to the metal to be treated.

The Examiner takes the position Derule teaches the presence of oxidizing agents, such as sodium nitrate and sodium phosphate in the coating solution (*see* Example 2 at col. 4, lines 51-55).

Applicants respectfully disagree.

In Example 2, S1 contains sodium nitrate and sodium phosphate. However, S1 is a reference solution that allows a comparison of surface conditions of the sheet with the surface conditions of a sheet treated with solutions S2 a, b and c according to Derule. That is, S1 is a solution prepared according to the prior art and is used as a comparison. Accordingly, S1 is not mixed with a solution containing an organic acid, and thus Derule does not disclose a solution simultaneously containing an organic acid in the claimed quantities and an oxidizing component.

Hence, Derule does not anticipate or render obvious the method of claim 14. In addition, it is respectfully submitted that the secondary references do not make up for the deficiencies of Derule.

Independent claim 15 is directed to a method of treatment by carboxylation, before

shaping, of a metal surface in oxidizing conditions in relation to the metal, comprising bringing the said metal surface selected from the group consisting of zinc, iron, aluminum, copper, lead, alloys thereof, galvanized steel, aluminium-coated steel, and copper-coated steel into contact with an organic or hydro-organic aqueous bath comprising at least one organic acid in free form or in the form of salt to form a conversion layer by carboxylation, wherein:

- the said organic acid is a saturated or unsaturated aliphatic monocarboxylic or dicarboxylic acid,
- the said organic acid is in solution and/or in emulsion in the bath at a concentration greater than 0.1 mole/litre and 1.5 mole/litre or less,
- the pH of the bath is acidic, wherein said oxidizing conditions are obtained by

causing an electric current to circulate between the said surface previously immersed in the bath and at least one backing electrode which has been likewise immersed.

The Examiner recognizes that Derule does not disclose the use of an electrical current and relies on Emmonds as teaching a process for electrocoating metal blanks by immersing metal blanks and electrodes in an electrolytic coating bath (*see* Fig. 2). The Examiner asserts that it would have been obvious to one of ordinary skill in the art to incorporate the electrodeposition process as taught by Emmonds into the coating process of Derule in order to achieve increased paint utilization, improved corrosion protection and low environmental contamination.

Applicants respectfully disagree.

Emmonds describes a paint deposition under an anodic current (anaphoresis) or under a cathodic current (cataphoresis). Cataphoresis is a process largely used in the automotive industry since the 1990's. Paint is deposited under current due to the ionization of the paint caused by the current and the transfer of the ionized paint onto the surface to be covered.

Once the surface is covered by the paint, it is rinsed and undergoes a reticulation thermal treatment. If the first layer contains conducting elements it will, then, be possible to deposit another layer under current.

In the case of the present invention, the aim is to oxidize the metal surface so as to create cations like Zn^{++} which will, then be able to react with the carboxylate COO^- anions. The chemical mechanism is completely different in the case of Emmonds and the present invention. Specifically, Emmonds does not describe a carboxylation process where a carboxylic acid contained in the bath, in which the metal surface is immersed, reacts with the metal surface in order to form a carboxylate layer. Accordingly, one of ordinary skill in the art would not look to Emmonds to arrive at the claimed invention.

Hence, even if one were to combine Derule and Emmonds, the combination would not result in the method of claim 15.

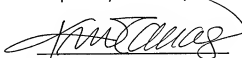
For at least the above reasons, it is respectfully submitted that claims 14 and 15 are patentable over the cited art.

In view of the above, reconsideration and allowance of claims 14-59 is respectfully requested.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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